

FILE NO. A34873-PCT-USA-066340.0139

PATENT

REMARKSSummary Of The Office Action

Claims 20-38 pending.

The Examiner has repeated the previous rejection of these claims (See Office Action, April 6, 2005). In particular, claims 20, 22 and 23 have been rejected under 35 U.S.C. § 102(b) as anticipated by Barton U.S. Patent No. 4,644,877 ("Barton") or alternatively under 35 U.S.C. § 103(a) as obvious from Barton. Claims 20-31 and 36-38 have been rejected under 35 U.S.C. § 103(a) as obvious from Barton in view of Carr et al. U.S. Patent No. 5,011,520 ("Carr"). Claims 32-35 have been rejected under 35 U.S.C. § 103(a) as obvious from Barton and Carr in view of Wofford et al. U.S. Patent No. 5,011,520 ("Wofford").

The Examiner was not persuaded to reverse these rejections by applicants' previously submitted arguments.

Applicants' Reply

Applicants have amended the claims to clarify the invention. Applicants' respectfully traverse the prior art rejections.

Applicants resubmit the Remarks section presented in the previous Reply dated July 28, 2005. For brevity, the Remarks section from the previous Reply is not reproduced verbatim, but is incorporated by reference herein in its entirety. Applicants respectfully request reconsideration of those Remarks.

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Applicants here submit the following additional remarks:

As previously submitted, applicants' invention relates to plasma processing of industrial waste gases to remove toxic byproducts in industrial processes. According to independent claim 20, a liquid jet pump (e.g. venturi effect pump) is used to draw the waste gases through a reaction chamber for processing. A suction port of the liquid jet is connected to an outlet of the reaction chamber so that processed gases exiting the outlet of the reaction chamber are mixed with the liquid of liquid jet. This waste cleaning system (claim 20) is not shown, taught or suggested by the cited prior art.

Applicants respectfully submit that as commonly understood in the art, liquid jet pumps (e.g., Fig. 1, pump 3) operate on the so-called Venturi effect, involve constricting fluid flow to create suction in the constricted region. The Venturi effect requires not only fluid flow (at any pressure) but also a constricted region in the flow path, which leads to a pressure drop in the constricted region. After the constricted region, for example, in a flared Venturi tube, the fluid pressure returns to its original value. The constricted region having lower pressure is connected via a suction tube or port (e.g., Fig. 1, suction port 21) to another chamber to provide vacuum drawing power or suction on the chamber.

Barton § 102(b) and § 103(a) rejections

Barton does not disclose or suggest a liquid jet pump to suction a reaction chamber. Barton describes three annular rows of inwardly directed spray nozzles 94 to atomize quenching liquid to form a uniform spray of micron-sized droplets to quench the product gas and particulate matter passing through spray ring 16. (See Barton col. 5 lines 15 - 30). Spray nozzles 94 are configured to atomize liquid but not to create "suction" on the reaction chamber. In fact, a person

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of ordinary skill in the art would read Barton as teaching away from the use of liquid jet pumps for Barton provides a mechanical pumps (e.g., induction/suction fan 20, variable speed waste feed pump 74, etc.) for moving waste gases and products (See e.g, col. 6 lines 31-37).

Accordingly claim 20 , which requires "a liquid jet pump having a suction port connected to said reaction chamber outlet and generating negative pressure in said reaction chamber," is neither anticiapted nor obvious from Barton.

Barton and Carr § 103(a) rejection

As previously submitted Carr merely describes a hydrodynamic fume scrubber, i.e. a water scrubber. (See e.g., FIGS 1-10). Carr's fume scrubber includes several stages (e.g., an inlet stage 18, and a negative pressure providing stage 20 which is upstream of a main chamber 22). (See e.g., col. 6 line 28 - col. 7 lines line 4, FIG. 6a, etc.). As noted by the Examiner, Carr uses a nozzle to direct scrubbing liquid to increase recirculation stream velocity to promote mixing of incoming gas effluent in the inlet section before the main chamber. (See Office Action section 2 page 4 citing Carr col. 3 line 65 -68, col. 4 lines 1-2, and col. 9 lines 1-25). However, applicants note that Carr's negative pressure providing stage is located at the inlet or upstream of the main chamber 22. In particular, Carr does not show or suggest "a liquid jet pump having a suction port connected to said reaction chamber outlet and generating negative pressure in said reaction chamber."

In this context, applicants' again note that Carr's apparatus configuration, which has the negative pressure providing stage located at the inlet, will be unworkable in plasma processing arrangements because of the physical and chemical nature of plasma processes. Plasma processes are "dry" gas processes and will not tolerate any mixture of water or liquids in the reaction chamber. Thus, a person of ordinary skill in the art would not apply Carr's inlet

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configuration to a plasma reaction chamber to draw "dry" process gases into the reaction chamber.

Thus, Carr like Barton does not to show, teach or suggest using a liquid jet pump located at the outlet of a plasma reaction chamber to draw waste gases through the reaction chamber for plasma processing. Therefore, claim 20 is patentable over the cited references — Barton and Carr, whether they are viewed individually or in combination.

Dependent claims 21-38

Dependent claims 21-38 are patentable over the cited references — Barton, Carr and Wofford, for at least the same reasons that parent claim 20 is patentable over these references.

Conclusion

Applicants respectfully submit that this application is now in condition for allowance. Reconsideration and prompt allowance of which are requested.

If there are any remaining issues to be resolved, applicant respectfully requests that the Examiner should kindly contact the undersigned attorney for a telephone interview.

By: _____

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